

# Decimal Subtraction

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## CONCEPT

## 1

# Decimal Subtraction

Here you'll learn to subtract decimals with and without rounding.



After winning the Regional Championship, Ms. Sutter took the girls out for an ice cream sundae. While they were sitting at the table, the four girls began rethinking all of their times and talking about how much fun they had running.

"It was great, but I was nervous too," Uniqua said. "especially since I was the last runner."

"Yes, I can see that, but you did great," Jessica complimented her.

"It was a close race," Tasha said.

"Not that close," Jessica said.

"Sure it was," Karin chimed in. "It was close between all three winning teams and it was a close call for us to beat last year's time too."

"Are you sure?" Jessica questioned.

"Sure I am, look at these times," Karin said writing on a napkin.

53.87 Last year's team

53.73 Our time

53.70 2<sup>nd</sup> place

53.68 3<sup>rd</sup> place

"You can figure this out girls, but doing the math," Ms. Sutter said smiling.

**Ms. Sutter is correct. Subtracting decimals is a way to figure out the difference between winning and coming**

in second or third. What is the difference between last year's time and this year's? What is the difference between second and first? What is the difference between first and third?

The best way to figure out these problems is to subtract the decimals. This Concept is all about subtracting decimals. By the time you are finished, you will be able to figure out the differences as well.

## Guidance

To compare two values, or find the *difference* in two values, or find out “how many more” we subtract. Anytime we want to find a “left over” value or a “less than” value we subtract. Anytime that you see these key words you can be sure that subtraction is necessary.

You know how to add decimals and estimate sums. Now it is time to learn how to subtract decimals and estimate differences.

### How do we subtract decimals?

We subtract decimals the same way we subtract whole numbers—with special care to place value.

For instance, when you subtract 571 from 2,462 you make sure to line up the different place values, so that the thousands are subtracted from thousands, hundreds are subtracted from hundreds, and so on.

$$\begin{array}{r} 2,462 \\ - 571 \\ \hline 1891 \end{array}$$

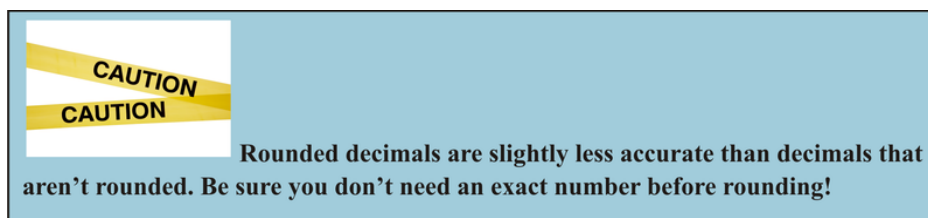
When you subtract two decimals, we do the same thing. We line up the numbers according to place value and use the decimal points as a starting point. If there are missing digits, we can add in zeros to help us keep our work straight.

$$\begin{array}{r} 18.98 \\ - 4.50 \\ \hline 14.48 \end{array}$$

Notice that the decimal points are lined up and then each digit is matched according to place value. You can see that the zero in red was added to help us keep each digit in the correct location.

### When is it useful to use rounding?

Rounding is useful when estimating or you could think of it as times when you need an approximate answer not an exact one.



What kinds of situations are alright to round?

One time that we can use rounding is if the decimals are too long for pencil calculations. An approximate answer is sufficient. Also, if the problem itself tells us that we don't need an exact answer. The question might use words like close to or approximate.

**In these cases, we round the decimals *before* we subtract. Look for clues in the problem to tell you whether or not to round before subtracting. If you are asked to round, make sure you round to the right place!**

Round the numbers to the nearest tenth then find the difference,  $72.953 - 52.418$

**This problem asks us to round each number to the tenth place before subtracting.**

Underline the number we're rounding *to* and bold or circle the number directly to the right of it.

We are rounding to the tenth place, so round to the place directly to the right of the decimal place.

**The bolded number in the hundredths place, is the one to look at when deciding to round up or down.**

$72.\underline{9}\mathbf{5}3 \rightarrow$  rounded to the tenth place  $\rightarrow 73.0$

$52.\underline{4}\mathbf{1}8 \rightarrow$  rounded to the tenth place  $\rightarrow 52.4$

**Now that the numbers are rounded, we line up the decimal places, and subtract.**

$$\begin{array}{r} 73.0 \\ - 52.4 \\ \hline 20.6 \end{array}$$

**While rounding doesn't give us an exact answer, you can see that it simplifies the subtraction!**

Now it's your turn to try a few. Find each difference.

### Example A

$$5.674 - 2.5 = \underline{\hspace{1cm}}$$

**Solution:** 3.174

### Example B

Take 5.67 from 12.378

**Solution:** 6.708

### Example C

Round to the nearest tenth and then subtract,  $8.356 - 1.258$

**Solution:**  $8.4 - 1.3 = 7.1$

Now back to the original problem.

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“You can figure this out girls, but doing the math,” Ms. Sutter said smiling.

Ms. Sutter is correct. Subtracting decimals is a way to figure out the difference between winning and coming in second or third. What is the difference between last year’s time and this year’s? What is the difference between second and first? What is the difference between first and third?

**First, we find the difference between last year’s time and this year’s time. We subtract one time from the other. We line up our decimal points and subtract.**

$$\begin{array}{r} 53.87 \\ - 53.73 \\ \hline .14 \end{array}$$

**The girls beat the previous year’s time by fourteen hundredths of a second. Wow! That is close!**

**Next, we look at the times between first and second place.**

$$\begin{array}{r} 53.73 \\ - 53.70 \\ \hline .03 \end{array}$$

**The difference between first and second place was very close! The girls only won by three hundredths of a second.**

**Finally, we can look at the difference between the first and third place finishes.**

$$53.73 - 53.68 = .05$$

**Wow! The first three teams had very close finishes!!!**

## Vocabulary

Here are the vocabulary words in this Concept.

**Difference** a key word that means subtraction.

**Estimate** to find an approximate answer to a problem.

**Rounding** one method of estimating where a number is changed according to the place value that it is closest to.

### Guided Practice

Here is one for you to try on your own.

Subtract  $4.56 - 2.37$

#### Answer

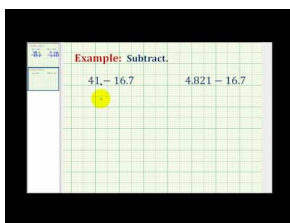
To subtract, we simply line up the digits according to place value and subtract.

2.19

**This is our answer.**

### Video Review

Here is a video for review.



#### MEDIA

Click image to the left for more content.

- This is a James Sousa video on subtracting decimals.

### Practice

Directions: Find each difference.

1.  $6.57 - 5.75$
2.  $.0826 - .044$
3.  $19.315 - 6.8116$
4.  $2056.04 - 2044.1$
5.  $303.45 - 112.05$
6.  $16.576 - 8.43$
7.  $199.2 - 123.45$
8.  $1.0009 - .234$
9.  $789.12 - .876$
10.  $102.03 - .27$

Directions: Find the difference after rounding each decimal to the nearest hundredth.

11.  $63.385 - 50.508$
12.  $.295 - .361$
13.  $747.005 - 47.035$
14.  $.882 - .596$
15.  $.9887 - .0245$